CLAIMS

I claim:

1. An infrared radiation source comprising a radiation-transparent, gas-tight tube (2) of electrically insulating material, and a heat conductor (3) comprising carbon strip arranged in the tube, the heat conductor having two ends which are respectively electrically and mechanically connected to bushings (4a, 4b), wherein the bushings comprise at least one metal selected from the group consisting of molybdenum, tungsten and tantalum, the bushings being respectively connected via current feed-through leads (8a, 8b) with electrical connections (10a, 10b) projecting from the tube, and wherein the two ends of the heat conductor are respectively connected to one of the bushings by a metallic solder (6) comprising at least one metal selected from the group consisting of titanium, zirconium and hafnium.

2. The infrared radiation source according to claim 1, wherein the heat conductor (3) is respectively provided at each of its two ends with a coating (5a, 5b) comprising at least one noble metal.

3. The infrared radiation source according to claim 2, wherein the at least one noble metal is selected from the group consisting platinum, ruthenium, rhodium, palladium, osmium, iridium, and alloys thereof.

4. The infrared radiation source according to claim 3, wherein the at least one noble metal is selected from the group consisting of platinum, palladium, rhodium, and alloys of at least two of these metals.

5. The infrared radiation source according to claim 1, wherein the bushings (4a, 4b) have a first contact layer (11) at least on their surfaces facing the metallic solder (6), and wherein the first contact layer (11) comprises at least one metal selected from the group consisting of vanadium, niobium, and tantalum.

6. The infrared radiation source according to claim 5, wherein the first contact layer (11) ~~comprises~~ is made of tantalum.

7. The infrared radiation source according to claim 5, wherein the bushings (4a, 4b) have a second contact layer applied to the first contact layer (11), and wherein a chemical composition of the first contact layer (11) is different from that of the second contact layer.

11/19/2003

8. The infrared radiation source according to claim 7, wherein the second contact layer comprises at least one metal selected from the group consisting of vanadium, niobium, tantalum, and tungsten.

9. The infrared radiation source according to claim 1, wherein the metallic solder (6) is made of ~~comprises~~ zirconium or an alloy thereof.

10. The infrared radiation source according to claim 1, wherein the bushings (4a, 4b) are made of ~~comprise~~ tantalum.

11. The infrared radiation source according to claim 1, wherein the bushings (4a, 4b) are made of ~~comprise~~ molybdenum and are coated on their surface facing the heat conductor (3) with a first contact layer (11) made of ~~comprising~~ tantalum or tungsten.

11/19/2003

12. The infrared radiation source according to claim 1, wherein the current feed-through leads (8a, 8b) are made of ~~comprise~~ molybdenum.

13. The infrared radiation source according to claim 1, wherein the tube (2) is made of ~~comprises~~ silica glass.

14. The infrared radiation source according to claim 1, wherein the tube (2) is filled with a filler gas.

15. The infrared radiation source according to claim 14, wherein a gas pressure of the filler gas is in a range of about 650-850 mbar (650-850 hPa).

16. The infrared radiation source according to claim 14, wherein the filler gas comprises at least one noble gas.

17. The infrared radiation source according to claim 1, wherein the bushings (4a, 4b) have a large enough outer surface to be cooled by thermal radiation or convection during operation of the infrared radiation source (1).